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EXAMINER	
NELSON, ALECIA DIANE	

ART UNIT	PAPER NUMBER
2675	5

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/037,437	BOOTH ET AL.	
	Examiner	Art Unit	
	Alecia D. Nelson	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. ***Claims 11 and 26*** objected to because of the following informalities: **Claim 11** appears to contain typos in lines 3-5 of the claim. Specifically, the portion of the claim reciting that the sensing circuit is adapted to be coupled to LEDs operable in the emit mode, wherein the row of LEDs operable in emit mode [is] adjacent to the row of LEDs operable in the sense mode. **Claim 26**, lines 1-2 recite "plurality of diodes is are arranged". It appears that the word "are" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. ***Claims 1-6, and 11-14*** are rejected under 35 U.S.C. 102(e) as being anticipated by Stam et al. (U.S. Patent Application Publication 2002/0047624).

With reference to **claim 1**, Stam et al. teaches a display system (100) comprising a plurality of LEDs forming a display panel, at least some of the LEDs (110) of the display panel operable in an emit mode and at least some of the LEDs (106) operable in a sense mode. A driving circuit (processor, 401) adapted to couple to one of the plurality of LEDS (110) operable in the emit mode and structured to cause the one of the plurality of LEDS operable in the emit mode to emit light (page 2, paragraph 25). A sensing circuit (see Figure 4, circuitry including 106, R7, C1) adapted to couple to one of the plurality of LEDs operable in the sense mode and structured to cause the one of the plurality of LEDs operable in the sense mode to sense light energy (see page 4, paragraph 41).

With reference to **claim 2**, Stam et al. teaches that at least some of the plurality of LEDS of the display are operable in the emit mode and in the sense mode (see page 3, paragraph 36).

With reference to **claim 3**, Stam et al. teaches that one or more of the plurality of LEDs comprises an organic material (see page 3, paragraph 30).

With reference to **claim 4**, Stam et al. teaches that the sensing circuit comprises a reverse bias circuit coupled to the one of the plurality of LEDS operable in the sense mode (see page 3, paragraph 36).

With reference to **claims 5 and 6**, Stam et al. teaches that the sensing circuit is structured to sense an amount of light energy received by the one of the plurality of LEDS operable in sense mode and to sense an amount of light energy generated from outside the display panel (see page 3, paragraph 31).

With reference to **claim 11**, Stam et al. teaches that the driving circuit (401) is adapted to be coupled to a row of LEDS (110) operable in the emit mode (see page 4, paragraph 39) while the sensing circuit is adapted to be coupled to a row of LEDS operable in the sense mode (see page 4, paragraph 41), the row of LEDs operable in the emit mode is adjacent to the row of LEDs operable in the sense mode (see page 4, paragraph 39).

With reference to **claim 12**, Stam et al. teaches adjusting the brightness of the LEDs (110) with respect to the reading from the detector (106) by modulation of the pulse widths (see page 4, paragraph 43), which would thereby be inherent for the device to contain circuitry for adjusting the brightness as explained.

With reference to **claims 13 and 14**, Stam et al. teaches that the LED of the display panel operable in the sense mode is configured to sense light from a source external to the display panel or from the LED in the display panel operable in the emit mode (see page 3, paragraph 31).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. ***Claims 7-10*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al..

With reference to **claim 7**, Stam et al. teaches all that is required as explained above with reference to **claim 1**. Even though Stam et al. teaches that one of LEDs (101-13) may be used as a detector (106), wherein the one LED can be reverse-biased and operated as a photodiode to detect light from other LEDs (see page 3, paragraph 36), there is no disclosure that the biasing circuit is coupled to a first terminal and a

sensing circuit is coupled to a second terminal. However it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for circuitry connection to the LEDs in order to carry out the reverse-biased driving and the LED and detecting the light being emitted.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for appropriate connection to the terminals of the LEDs in order to carry out the reverse-biasing and sensing as disclosed by Stam et al. in order to thereby provide an improved display assembly that produces light of a desired resultant hue based on detected lighting conditions.

With reference to **claim 8**, Stam et al. teaches that the sensing circuit comprises a sense amplifier (pull-up resistor, R7) (see page 4, paragraph 41).

With reference to **claim 9**, Stam et al. teaches that the LEDs are independently controlled (see page 2, paragraph 25), which would thereby make it obvious to one having ordinary skill in the art for the detecting LED to also be independently controlled being that it has a different function then that of the first group of LEDs, and the LEDs of the first group are controlled by different circuitry then that of the LEDs in the second group.

With reference to **claim 10**, Stam et al. teaches that LEDs are illustrated in groups, however other configurations are possible (see page 4, paragraph 39).

Claims 15-16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. as applied to **claim 1** above, and further in view of Gu (U.S. Patent Publication No. 2003/0052904).

With reference to the claim Stam et al. teaches all that is required as explained above, including teaching that it is possible to use multiple detectors to sense output from different LEDs (see page 3, paragraph 35), as well as adjusting the brightness of the emitting LEDs based on reading from the detecting LEDs by adjusting the width of the pulses (see page 4, paragraph 43). It is also taught calibration by varying a discrete component, which thus varies the intensity of one or more colors of the LEDs (see page 6, paragraph 56), however there is no disclosure concerning a uniformity calibration circuit or a gamma uniformity calibration circuit operable to adjust the output of the LED in the display panel.

Gu teaches a pulse width modulation method employed on an organic light emitting device comprising a plurality of pixels (65A-65R) arranged in a matrix array comprises current driven light emitting diodes (see page 2, paragraph 25), wherein it is necessary due to imperfections a calibration for the gamma correction to match the image with the characteristics of the plurality of pixels (see page 2, paragraph 26).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for calibration for the gamma correction, as taught by Gu, in a device similar to that which is taught by Stam et al. in order to thereby provide an

OLED display device wherein the resultant display intensity is more desirable to the user.

7. ***Claims 17-19*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. as applied to **claim 1** above, and further in view of Ogawa (U.S. Patent No. 5,572,251).

With reference to **claims 17-19** Stam et al. teaches all that is required as explained above however fails to teach a position circuit coupled to the sensing circuit structured to determine a position on the display panel at which an external light source is pointing.

Ogawa teaches an input system for a computer including an optical position detecting unit (12) and a laser pointer (15) for generating a light point (14) on the screen (11). Alight take-in portion (12a) of the optical position detecting unit (12) receives light from the light point (14) on the screen (11) and the optical position detecting unit (12) detects the position of the light point (14) (see column 3, lines 9-26). With further reference to **claim 18**, it is taught that it is possible for the device to detect two or more light points (see column 9, lines 9-13). Further with reference to **claim 19**, there is taught an image input section (29) receives signals from CCD image sensor (27) regarding positional information, which is then processed and passed to the computer unit (17) (see column 4, lines 20-35), which performs necessary data processing by using the position data that has been supplied (see column 3, lines 32-34)

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the positional detection of an external light source

being pointed at the display, as taught by Ogawa, in a device similar to that which is taught by Stam et al., in order to thereby provide a system in which position detecting resolution with respect to the number of pixels in the image pickup device can be heightened so that an economical and high accurate optical position detecting unit can be provided.

8. ***Claims 20-22*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. as applied to **claim 1** above, and further in view of Forrest et al. (U.S. Patent Application Publication No. 2003/0213967).

With reference to the claims Stam et al. teaches all that is required as explained above, however fails to teach that the OLED is a stacked OLED (SOLED).

Forrest et al. teaches a multicolor organic light emitting device employing vertically stacked layers (see abstract) comprising a stack of LEDs (20-22) (see paragraph 38)

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the usage of a SOLED, as taught by Forrest et al. in a device similar that which is taught by Stam et al. in order to provide a multicolor organic light emitting device employing several types of organic electroluminescent media which performs with more desirable intensity levels.

9. ***Claims 23-27 and 28-35*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Scozzafava et al. (U.S. Patent No. 5,073,446).

With reference to **claims 23 and 28**, Stam et al. teaches a method for operating a display system that includes a display device (100) having one or more diodes (110) structured to generate light (see page 2, paragraph 25), and having one or more diodes (106) structured to sense light energy shining on them (see page 3, paragraph 31) comprising; a forward driving circuit (processor, 401) driving the diodes structured to generate light to cause an image to be shown on the display device; and reverse-biased circuit (see page 3, paragraph 36) measuring an amount of light energy shining on the diodes structured to sense light energy (see Figure 4, circuitry including 106, R7, C1).

Even though Stam et al. teaches the driving circuitry, reverse-biased circuitry, and sensing circuitry there is no disclosure as to the coupling to the terminals of the diodes, however it would be obvious to one having ordinary skill in the art at the time of the invention to allow for circuitry connection to the LEDs in order to carry out the reverse-biased driving and the LED and detecting the light being emitted. Further, Stam et al. teaches the generation of light with usage of LEDs, however the disclosure fails to teach that the display system generates electroluminescent light

Scozzafava et al. teaches an organic electroluminescent device capable of generating light to cause an image to be displayed wherein the organic EL device can be viewed as a diode which is forward biased (see column 3, lines 44-46).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the display device to generate electroluminescent light, as taught by Scozzafava et al. to a device similar to that which is taught by Stam et al.

in order to provide a organic electroluminescent light emitting device which performs with more desirable intensity levels.

With reference to **claims 29**, Stam et al. teaches that the diodes are driven independently, and thereby would be obvious to one having ordinary skill in the art to allow the driving and measuring to be carried out simultaneously (see page 2, paragraph 25).

With reference to **claims 25, 30, and 31**, even though Stam et al. teaches that it is possible for one of LEDs (110) to be used as a detector (106), the disclosure fails to specifically teach the display cycle of the driving diodes and the measuring diodes.

Scozzafava et al. teaches that the organic EL devices are forward biased during a portion of each period and reverse biased during the remaining portion of the period (see column 4, lines 1-8).

Therefore it would have been obvious to one having ordinary skill in the art to allow for a display cycle of driving and sensing, as taught by Scozzafava et al, in a device similar to that which is taught by Stam et al. which allows for one LED to be driven to emit light and to detect emitted light in order to achieve a desired resultant intensity on the display device.

With reference to **claims 24 and 32**, Stam et al. teaches that some of the light emitted from LEDs (110) is scattered from the diffuser (105) back towards detector

(106) and thus allowing the detector (106) to measure the relative output of the LEDs (110). Additionally, the detector (106) can optionally measure the ambient light through the diffuse (105) (see page 3, paragraph 31).

With reference to **claim 26**, Stam et al. teaches that one of ordinary skill in the art will appreciate that multiple configurations of the LEDs are possible other then that which is illustrated (see page 4, paragraph 39).

With reference to **claim 27**, Stam et al. teaches that the device could be composed of organic LEDs (see page 3, paragraph 30).

With reference to **claims 33 and 35**, Stam et al. teaches that the overall brightness of the display device is adjusted based on the amount of light detected by the sensing diode (see page 2, paragraph 24).

With reference to **claim 34**, Stam et al. teaches adjusting the brightness of the emitting LEDs based on reading from the detecting LEDs by adjusting the width of the pulses (see page 4, paragraph 43).

10. ***Claim 36*** is rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Scozzafava et al. as applied to **claim 28** above, and further in view of Gu (U.S. Patent Publication No. 2003/0052904).

With reference to the claim Stam et al. teaches all that is required as explained above, including teaching that it is possible to use multiple detectors to sense output from different LEDs (see page 3, paragraph 35), as well as adjusting the brightness of the emitting LEDs based on reading from the detecting LEDs by adjusting the width of the pulses (see page 4, paragraph 43). It is also taught calibration by varying a discrete component, which thus varies the intensity of one or more colors of the LEDs (see page 6, paragraph 56), however there is no disclosure concerning a uniformity calibration circuit or a gamma uniformity calibration circuit operable to adjust the output of the LED in the display panel.

Gu teaches a pulse width modulation method employed on an organic light emitting device comprising a plurality of pixels (65A-65R) arranged in a matrix array comprises current driven light emitting diodes (see page 2, paragraph 25), wherein it is necessary due to imperfections a calibration for the gamma correction to match the image with the characteristics of the plurality of pixels (see page 2, paragraph 26).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for calibration for the gamma correction, as taught by Gu, in a device similar to that which is taught by Stam et al. and Scozzafava et al. in order to thereby provide an OLED display device wherein the resultant display intensity is more desirable to the user.

11. ***Claims 37-39*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. and Scozzafava et al. as applied to **claim 28** above, and further in view of Ogawa (U.S. Patent No. 5,572,251).

With reference to **claims 37-39** Stam et al. and Scozzafava et al. teach all that is required as explained above however fails to teach a position circuit coupled to the sensing circuit structured to determine a position on the display panel at which an external light source is pointing.

Ogawa teaches an input system for a computer including an optical position detecting unit (12) and a laser pointer (15) for generating a light point (14) on the screen (11). A light take-in portion (12a) of the optical position detecting unit (12) receives light from the light point (14) on the screen (11) and the optical position detecting unit (12) detects the position of the light point (14) (see column 3, lines 9-26). With further reference to **claim 38**, it is taught that it is possible for the device to detect two or more light points (see column 9, lines 9-13). Further with reference to **claim 39**, there is taught an image input section (29) receives signals from CCD image sensor (27) regarding positional information, which is then processed and passed to the computer unit (17) (see column 4, lines 20-35), which performs necessary data processing by using the position data that has been supplied (see column 3, lines 32-34)

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the positional detection of an external light source being pointed at the display, as taught by Ogawa, in a device similar to that which is taught by Stam et al. and Scozzafava et al., in order to thereby provide a system in

which position detecting resolution with respect to the number of pixels in the image pickup device can be heightened so that an economical and high accurate optical position detecting unit can be provided.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Borolini et al. (U.S. Patent no. 5,268,635) teaches a visual indication of an operational condition utilizing a pair of LEDs, wherein each LED of a pair is used to verify that the other LED can emit light greater than a predefined level.

Tang et al. (U.S. Patent No 5,294,870) teaches an organic electroluminescent multicolor image display device containing an image display array made up of a plurality of light emitting pixels.

Kim (U.S. Patent No. 5,448,082) teaches an infrared LED functioning efficiently as both an emitter and a detector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is (703) 305-0143. The examiner can normally be reached on Monday-Friday 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on (703) 305-9720. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-2600.

adn/And
December 10, 2003

STEVEN SARAS
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